

(19)



JAPANESE PATENT OFFICE

## PATENT ABSTRACTS OF JAPAN

(11) Publication number: **62042074 A**(43) Date of publication of application: **24.02.87**

(51) Int. Cl

**G01R 31/34**  
**G01R 27/02**  
**H02P 7/63**

(21) Application number: **60181488**(22) Date of filing: **19.08.85**(71) Applicant: **MEIDENSHA ELECTRIC MFG CO LTD**(72) Inventor: **TERAJIMA MASAYUKI**  
**ASHIKAGA TADASHI**(54) **MEASURING METHOD FOR PARAMETER OF INDUCTION MOTOR**

## (57) Abstract:

**PURPOSE:** To easily and surely perform an automatic measurement by applying a DC voltage to the primary input of an induction motor from a power inverter, measuring the primary input current and voltage of the motor, finding the primary parameters and calculating the secondary parameters based on prescribed equations.

**CONSTITUTION:** With transistors  $Tr_1$ ,  $Tr_6$ , etc. in an inverter 21 of the driving power source switched on and off, while a PWM waveform generating circuit 22 set with a definite voltage by a control circuit 11, DC voltage pulses are impressed on the windings U, W, etc. of an induction motor 1. Thus, the voltage and current are measured through a voltage and current detectors 12, 13, and from their ratio, the resistance  $r_1$  as a primary parameter is determined by the circuit 11. On the other hand, from the rising transient currents  $i_1(t)$ ,  $i_2(t)$  and the end current  $I_e$  of the DC current  $I$ , rising time constant  $T$  of the current  $I$  is determined, and the secondary resistance  $r_2$ , secondary inductance  $L_2$  as the secondary parameters are determined based on the equation 1. In this manner, an automatic measurement of the

parameters can be made easily and surely in a standstill state of the motor.

COPYRIGHT: (C)1987,JPO&amp;Japio

$$\frac{r_2}{r_1 + r_2} = \frac{1 - \frac{I_e(t_1)}{I_e}}{e^{-\frac{1}{T} t_1}}$$

$$L_2 = T \cdot \frac{r_1 r_2}{r_1 + r_2}$$

